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| 09/821,168 | 03/29/2001 | Stefan Pleisch | CH20000077 | 4016 |

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| EXAMINER | |
|---|---|
| CHANG, JULIAN | |

| ART UNIT | PAPER NUMBER |
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| 2452 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pair@tuchmanlaw.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/821,168 | PLEISCH ET AL. | |
| | Examiner | Art Unit | |
| | JULIAN CHANG | 2452 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *29 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-3 and 5-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. This Office action is responsive to communication filed on 07/29/09. Claims 1-3, and 5-18 are pending, and have been rejected.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 and 5-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 is directed towards a computer network comprising various "means for" limitations. Claim elements "means for evaluating", "means for agreeing", "means for aborting and/or undoing", "means for moving", and "means for generating" are means (or step) plus function limitations that invoke 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

Claim 10 is directed towards "a computer program product…comprising program code means for use for [sic] operating a mobile agent". (Claim 10, preamble). Claim element "means for use for operating a mobile agent" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

Claims 10-12, 14, 15, 17 and 18 are indefinite because the claimed means are computer programs for which applicant have not disclosed any algorithm for performing. In Aristocrat, the court indicated that "the corresponding structure for a § 112 ¶ 6 claim for a computer-implemented function is the algorithm disclosed in the specification". Aristocrat Techs. Australia Pty Ltd. v. Int'l Game Tech., 521 F.3d 1328, 1333 (Fed. Cir. 2008). Similar to Aristocrat, Applicant has not provided any algorithm in the original disclosure. Id at 1337.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or
(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by either:

(a) Amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or
(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 C.F.R. 1.75(d) and MPEP 2181 and 608.01(o).

4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention. Applicant has indicated that "the network comprises a sequence of stages". (Claim 12, preamble). Claim 12 is indefinite because it is unclear how a network, which is a physical entity, can comprise a sequence of stages, which the Office understands to be "[a] level, degree, or period of time in the course of a process". The American Heritage College Dictionary, 4th Edition.

5. Claims 1-3, 5-9, 13 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 includes the limitation “generating **a** decision in each stage, the decision including the primary place that corresponds to the place in which the mobile agent has executed successfully, the set of places of the next stage to which the modified mobile agent is moved, and the resulting modified mobile agent". (emphasis added). Claim 1 is indefinite because it claims generating a single decision, and the follows by claiming that the decision including three different decisions. It is unclear whether one or three decisions are being generated. To expedite prosecution, the claims will be interpreted in the broadest reasonable interpretation as generating only one decision from the group of the three different decisions.

***Claim Rejections - 35 USC § 102***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1-3, 5-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Rothermel et al. (hereinafter Rothermel) "A Fault-Tolerant Protocol for Providing the Exactly-Once Property of Mobile Agents", 1998.

8. As per claim 1, Rothermel teaches a method of operating a mobile agent (Fig 2, item S1, S2, wherein the S1 and S2 are mobile agent stages) that travels through a network of a number of computers, wherein the mobile agent is executed in a sequence of stages (Fig 2) and wherein each stage comprises a set of places (each node is fully capable of receiving multiple incoming processes, see for example, Fig 2, Fig 3 there are plurality of processes/put going from stage 1 to stage 2), the method comprising the following steps:

executing the mobile agent in at least one of the set of places of a respective one of the stages (Fig 2, places are nodes 1-5 in stage $S_1$ and 1-3 in $S_2$),

evaluating (abort is not triggered, and put is performed) in which place (Fig 2, nodes 1 through 5) of the respective stage the mobile agent has been executed successfully (Fig 3, wherein a successful execution entails going from $S_i$ to $S_{i+1}$),

agreeing on a primary place (priority of worker node; Fig 2 and 3, node 1 in stage S 1 would be a primary place amongst other places) among the set of places (pg 3, Col. 1, lines 1-25; Col. 2, lines 25-32),

aborting and/or undoing any operation in connection with the mobile agent in any other place of the respective stage (pg 2, 3rd paragraph; pg 3, Col. 2, lines 25-32),

moving a modified mobile agent resulting from the successful execution to the next stage (Fig 3, the agent is moved to next stage $S_{i+1}$) to at least two forwarding places (pg 3, Col. 2, lines 28-35, wherein plurality of places are involved in determining which of the forwarding places would send the data to the next stage), and

wherein agreeing on a primary place includes generating a decision in each stage, the decision including primary place that corresponds to the place in which the mobile agent has executed successfully (pg 3, Col. 1, lines 1-15, lines 35-40, lines 45-50, where within a particular stage other than $N_k$, a node with priority, i.e. initial worker will execute the agent, i.e. Execute(Agent);), the set of places of the next stage to which the modified mobile agent is moved (Fig 2, wherein S2 is the next set of places; similarly, Fig 3, set $S_{i+1}$ provides a set of places the information is moved to; pg 3, Col. 1, lines 35-40 further provide support for a set of places/nodes the information is moved to; pg 3, Col. 1, lines 45-50, i.e. put(Agent) to (AllNodesOfNextStage)), and the resulting modified mobile agent (pg 3, Col. 1, lines 45-50, where the execution of the agent results in modified mobile agent).

9. As per claim 2, Rothermel teaches the steps are repeated for any one of the sequence of stages (see for example, Fig 3; pg 3, Col. 2, lines 40-45).

10. As per claim 3, Rothermel teaches the mobile agent is executed sequentially in the set of places of the respective stage (Fig 3, going from stage $S_i$ to $S_{i+1}$), and wherein the mobile agent is not executed anymore in subsequent places after successful execution in one of the set of places and agreement on this successful execution (pg 3, Col. 2, lines 25-33).

11. As per claim 5, Rothermel teaches at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is confirmed to at least all other places of the respective stage except the primary place (Fig 2, wherein each item in stage S2 are capable of executing the process, but only one item is committed at a time to the process).

12. As per claim 6, Rothermel teaches at least one of the primary place and/or the set of places of the next stage and/or the resulting modified mobile agent is moved to all places of the next stage (Fig 2).

13. As per claim 7, Rothermel teaches the move is performed as a reliable forward function (pg 3, Col. 1, lines 1-15, wherein if there is a failure, another agent will take over, thus providing reliability).

14. As per claim 8, Rothermel teaches the steps are managed by a fault-tolerance enabler (FTE) (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process) which is independent of the mobile agent (Fig 4).

15. As per claim 9, Rothermel teaches the FTE travels with the mobile agent to the set of places of the respective stage (pg 3, lines 45-53, wherein orchestrator plays fault tolerance role as it will decide on which item in the stage gets to execute the process through a voting process, furthermore, each stage will require a voting process to determine the committing node).

16. As per claim 10, Claim 10 is rejected for the same reasons as rejection to claim 1 above.

17. As per claim 11, Rothermel teaches the program code means is stored on a computer- readable medium (Fig 3, wherein stages has the ability to store software programs inherently).

18. As per claim 12, Claim 12 is rejected for the same reasons as rejection to claim 1 above.

19. As per claim 13, Rothermel teaches wherein the mobile agent is a computer program that acts autonomously on behalf of an agent owner or user and that travels through a network of a number of computers (it should be noted that observer nodes automatically decided upon themselves through a voting protocol, which node will be the primary node. The primary node is then carrying the information to the next stage, see Col. 2, lines 25-35; Fig 3).

20. As per claim 14-15, the claims are rejected for the same reasons as rejection to claim 13 above.

***Claim Rejections - 35 USC § 103***

21. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

22. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rothermel as applied to claim 1 above, and further in view of Pleisch ("State of the Art of Mobile Agent Computing – Security, Fault Tolerance, and Transaction Support", 1999).

23. As per claim 16, Rothermel does not explicitly teach non-primary places are configured to verify the modified mobile agent has successfully arrived at the set of places of the next stage to which the modified mobile agent is moved.

In Pleisch, one of the named inventors discloses that when execution of stage $a_i$ terminates, the briefcase b is broadcast to all rear guards of $a_i$, and if the rear guards of $a_i$ receive b, then they know that $a_i$ has correctly terminated. (¶ spanning p. 12 and 13). Since the non-primary nodes of Rothermel monitor to ensure that execution of a stage is successful, the combination of Rothermel and Pleisch would involve the non-primary nodes monitoring to ensure that the rear guards $a_i$ receive the briefcase b.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to verify that the modified mobile agent has successfully arrived at the next stage as taught by Pleisch in order to ensure that execution of the current stage has correctly terminated.

24. As per claim 17-18, the claims are rejected for the same reasons as rejection to claim 16 above.

### *Response to Arguments*

25. Applicant's arguments filed 07/29/09 have been fully considered but they are not persuasive.

a. Applicant argues that Rothermel fails to teach the generating a decision which includes the primary place that corresponds to the place in which the mobile agent has executed successfully. (Remarks 10). In particular, applicant cites Rothermel as teaching that "the node with the highest priority becomes the initial worker of a stage". (Id.)

Applicant's argument is not persuasive because a decision must still be made to determine which node has the highest priority to determine which node is the primary node. In other words, simply because the node with the highest priority becomes the initial worker does not immediately mean that no decision is made as to which node should be the initial worker. Moreover, as indicated in the previous office action, the nodes perform a voting protocol to determine which node will be the primary node that forwards information to the next stage. (See p. 4, Col. 2, lines 25-35; Fig. 3).

b. Applicant argues that Rothermel fails to teach generating a decision including the set of places of the next stage. (Remarks 10). Applicant's argument is not persuasive because Rothermel teaches a *put* operation that includes as a parameter 'AllNodesOfNextStage'. In order for the node to call such an operation with such a parameter, the parameter must be known and must have been determined (i.e., decided).

c. The remainder of applicant's arguments is moot in view of the new ground(s) of rejection presented above.

## ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JULIAN CHANG whose telephone number is (571)272-8631. The examiner can normally be reached on Monday thru Friday 9AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thu Nguyen can be reached on (571) 272-6967. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. C./
Examiner, Art Unit 2452

/THU NGUYEN/
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